



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/556,092

11/09/2005

Markus Oles

280378US0PCT

4755

22850

7590

02/22/2011

OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

LIGHTFOOT, ELENA TSOY

ART UNIT

PAPER NUMBER

1715

NOTIFICATION DATE

DELIVERY MODE

02/22/2011

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary	Application No. 10/556,092	Applicant(s) OLES ET AL.	
	Examiner ELENA Tsoy LIGHTFOOT	Art Unit 1715	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 4 and 5 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 6-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 November 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/30/2010</u> . | 6) <input type="checkbox"/> Other: _____ |

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 15, 2010 has been entered.

Response to Amendment

Amendment filed on August 30, 2010 has been entered. Claims 1-22 are pending in the application. Claims 4-5 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Claims examined on the merits are 1-3, and 6-22.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-3, and 6-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites “tridecafluoro-**1,1,2,2-tetrahydro**octyl-1-triethoxysilane”, which is confusing because **octyl** does not have C=C double bond in 1,2 position as being a saturated hydrocarbon radical such that 4 hydrogen atoms cannot be introduced into 1,1,2,2 positions to

Art Unit: 1715

give **1,1,2,2-tetrahydro**octyl. For examining purposes the phrase was interpreted as

“tridecafluoro-~~1,1,2,2-tetrahydro~~octyl-~~1~~-triethoxysilane”, i.e. as “tridecafluorotriethoxysilane”.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3, and 6-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nun et al (US 20020150724).

Nun et al is applied here for the same reasons as in the previous Office Actions:

Nun et al discloses a method for producing surfaces which have self-cleaning properties and a surface structure with elevations which are formed by the microparticles (See P14), the method comprising: hydrophobizing microparticles with fluoroalkylalkoxysilanes such as tridecafluorooctyltriethoxysilane (Dynasilan 8262, Sivento GmbH) (See P52) to form a surface structure, the surface structure having elevations with a mean height within a range 1-1000 nm, e.g. 500 nm and a mean separation within a range 1-1000 nm, e.g. 1200 nm, the microparticles having a particle diameter of 700 nm (See Fig. 3 and P20 and 22).

As to claimed ranges, note that particle diameter, elevation height and separation ranges of Baumann et al overlap claimed ranges. It is well settled that overlapping ranges are prima facie evidence of obviousness. It would have been obvious to one having ordinary skill in the art to have selected the portion of Nun et al's range that corresponds to the claimed range.

Art Unit: 1715

It is the Examiner's position that the produced surfaces have not only self-cleaning properties but also oleophobic, lipophobic and lactophobic properties, inherently since the surfaces are produced by the process that is substantially identical to that of claimed invention.

As to the substrate being textile, Nun et al discloses that their process may be used for producing self-cleaning surfaces on rigid objects, e.g. sculptures (i.e. ceramic, metal, glass substrates), greenhouses of **glass or Plexiglas®** (See P48); or on non-rigid objects, e.g. **umbrellas** or shower curtains (See P49). It is a common knowledge that umbrellas are typically made of textile*. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the process of Nun et al for producing self-cleaning surfaces to textile umbrellas because Nun et al does not limit its teaching to non-textile umbrellas.

As to claim 2, Nun et al teaches that the particles preferably comprise fumed silicas or precipitated silicas (See P24).

As to claim 3, Nun et al teaches that excellent results are produced when used for producing self-cleaning surfaces on planar or nonplanar objects, e.g. greenhouses of glass or Plexiglas® (claimed plastic article) (See P48), umbrellas or shower curtains (claimed plastic article) (See P49).

As to claims 13, 15, and 19, Nun et al teaches that the particles may be secured to the surface using a carrier (See P27) curable by polymerization or crosslinking by means of thermal energy and/or the energy in light, the mixing ratios of the carrier and particles varying within wide boundaries (See P28).

As to current amendment, Nun et al teaches that the hydrophobizing agent includes tridecafluorooctyltriethoxysilane in ethanol (Dynasilan 8262, Sivento GmbH) (See Example 2), and the particles include metal oxides, silicas, polymers, and silica-coated metal powders, particularly preferably fumed silicas or **precipitated silicas** (See P24). Thus, hydrophobizing step would be effected by crosslinking inherently since the process of Nun et al is substantially identical to that of claimed invention. Note that it is well known in the art that ethoxy silyl (i.e.

Art Unit: 1715

Si-O-CH₂CH₃) groups in the silane are reactive groups that hydrolyze into silanol groups Si-OH that react with OH-groups on the silica surface (See P24 of Published Application).

Note that according to the chart submitted by Applicants on August 30, 2010, Dynasilan 8262 is a solution of Dynasilan F 8261 of formula (EtO)₃Si-CH₂-CH₂-(CF₂)₅-CF₃ in ethanol. Therefore, Dynasilan 8262 is tridecafluorooctyltriethoxysilane of formula (EtO)₃Si-CH₂-CH₂-(CF₂)₅-CF₃. Thus, Dynasilan 8262, (EtO)₃Si-CH₂-CH₂-(CF₂)₅-CF₃, of Nun et al reads on claimed 3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyltriethoxysilane having three EtO substituents (triethoxy substituent of a silane) and one octyl substituent connected to Si atom:



where each C atom in 3, 4, 5, 6 and 7 positions of the octyl chain contains two F atoms and C atom in 8-th position of the octyl chain contains three F atoms (i.e.

3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl substituent of a silane).

As to claim 22, limitations of claim 22 are not addressed here as being optional.

5. Claims 1-3, and 6-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nun et al '724, as applied above, and further in view of Baumann et al (WO01/74739).

Examiner Note: for convenience, instead of WO01/74739, the Examiner will refer to US 6,872,441 of the same patent family.

The cited prior art is applied here for the same reasons as set forth in paragraph 11 of the Office Action mailed on 9/16/2009:

Nun et al discloses a method for producing surfaces which have self-cleaning properties and a surface structure with elevations which are formed by the microparticles (See P14), the method comprising: hydrophobizing microparticles with fluoroalkylalkoxysilanes such as tridecafluorooctyltriethoxysilane (Dynasilan 8262, Sivent GmbH) (See P52) to form a surface

Art Unit: 1715

structure, the surface structure having elevations with a mean height within a range 1-1000 nm, e.g. 500 nm and a mean separation within a range 1-1000 nm, e.g. 1200 nm, the microparticles having a particle diameter of 700 nm (See Fig. 3 and P20 and 22).

Nun et al fails to teach the use of an oligomer of tridecafluorooctyltriethoxysilane (Claim 22).

Baumann et al teaches that tridecafluorooctyltriethoxy silane and oligomers thereof (Dynasilanes® produced by Sivento Chemie Rheinfelden GmbH) may be used as hydrophobizing agent for coating microstructured surface to provide a self-cleaning surface (See column 6, lines 36-39).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used oligomers of tridecafluorooctyltriethoxy silane as hydrophobizing agent in Nun et al with the expectation of providing the desired self-cleaning surface, as taught by Baumann et al since Baumann et al teaches that tridecafluorooctyltriethoxy silane and oligomers thereof may be used as hydrophobizing agent for coating microstructured surface to provide a self-cleaning surface. Moreover, it is held that the selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

* US 5630846 to Hara et al is cited here to show that treating textile umbrella (See column 26, lines 17-18) with water- and oil-repellent agent (See Abstract) was known in the art.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELENA Tsoy LIGHTFOOT whose telephone number is (571)272-1429. The examiner can normally be reached on Monday-Friday, 9:00AM - 5:30 PM.

Art Unit: 1715

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Elena Tsoy Lightfoot, Ph.D.
Primary Examiner
Art Unit 1715

February 16, 2011

/Elena Tsoy Lightfoot/